

Article XX.— BEES FROM BRITISH GUIANA

By T. D. A. COCKERELL.

In connection with the work of the Tropical Research Station of the New York Zoological Society, conducted by Mr. William Beebe, collections of insects, including bees, were made. The present report deals with a series of bees from the Bartica District, and Mr. John Tee Van, in forwarding them, states that "almost all of these bees were procured about a clump of several species of nightshades (*Solanum*), which were flowering in thinned-out jungle." I give an artificial key, which will enable one who is not a specialist in bees to separate readily each species from the rest. It will, of course, remain necessary to compare any species with a fuller account to make sure that it is not some form unrepresented in the present collection. The types of the new species and varieties from British Guiana are deposited in The American Museum of Natural History. Species marked P. are from the Penal Settlement; those marked K. occur at Kalacoon.

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| The body, or some part of it, brilliant green | 1. |
| No part of the body brilliant green | 11. |
| 1. Thorax dark, with more or less purple tints, not bright green | 2. |
| Thorax bright or clear green, at least in part | 4. |
| 2. Small bee, less than 10 mm. long | <i>Augochlora callichlorura</i> , new species. |
| Large, robust bees, greatly exceeding 10 mm. | 3. |
| 3. Abdomen with the first two segments dark; tongue not extending to end of abdomen | <i>Eufriesia pulchra</i> (Smith). |
| Abdomen all bright green, with brassy tints; tongue extending backward far beyond tip of abdomen | <i>Euglossa brullei</i> Lepeletier. |
| 4. Hind margins of abdominal segments broadly black. | |
| <i>Augochlora nigromarginata</i> (Spinola).— P. | |
| Hind margins of abdominal segments green | 5. |
| Hind margins of abdominal segments red or whitish; very robust bees | 10. |
| 5. Small bee, less than 10 mm. long, the clypeus with a transverse apical ivory-colored band | <i>Ceratina lata</i> Spinola. |
| Larger, very robust bees | 6. |
| 6. Tongue extending beyond abdomen posteriorly | 7. |
| Tongue not extending beyond abdomen | 8. |
| 7. Scutellum with a patch of black tomentum | <i>Euglossa ignita</i> Smith; female. |
| Scutellum without a patch of black tomentum | <i>Euglossa ignita</i> Smith; male. |

8. Robust bees, about 10 mm. long or a little over; scutellum with a patch of black tomentum.....*Euglossa cordata* (Linnaeus).— P.
Much larger bees, a little over 20 mm. long.....9.
9. Scutellum with an obtuse median keel; posterior angles of scutellum rounded
Exærete smaragdina (Guérin).
Scutellum depressed in middle, without any keel; posterior angles of scutellum
rather prominent.....*Exærete dentata* (Linné).
10. Scutellum with a patch of light fulvous tomentum; scape red.
Euglossa decorata ruficauda, new variety; female — K.
Scutellum with a patch of black tomentum; scape dark, with a pale yellow
mark.....*Euglossa singularis* Mocsáry.— P.
Scutellum without a patch of tomentum; scape pale yellow in front.
Euglossa decorata ruficauda, new variety; male.
11. Very large bees, anterior wing at least 23 mm. long; integument partly or
wholly ferruginous.....12.
Anterior wing less than 20 mm. long.....13.
12. Abdomen with broad black bands.
Xylocopa frontalis nitens (Lepeletier); male ¹— P.
Abdomen without black bands.....*Xylocopa fimbriata* (Fabricius).
13. Wasp-like bee, with fusiform abdomen, reddish wings and red legs; three
complete submarginal cells, first recurrent nervure meeting second transverso-
cubital.....*Rhathymus beebei*, new species
Otherwise formed, the abdomen broad at base.....14.
14. Surface of eyes with fine short hair; first abdominal segment red, the others
black; female abdomen sharply pointed.
Cœlioxys ardescens Cockerell. (Hym. 6 and 138.)
Eyes not hairy; female abdomen not sharply pointed.....15.
15. Anterior wings with three complete submarginal cells.....16.
Anterior wings with submarginal cells incomplete or wanting; stingless social
bees.....29.
16. Small bee, about 8 mm. long; wings beyond middle milky-white, the extreme
apex dusky.....*Tetrapedia lacteipennis* Vachal.— P.
Larger bees; the wings not thus colored.....17.
17. Abdomen clear ferruginous; large robust bees.....18.
Abdomen not ferruginous; or only partly so.....19.
18. Hind legs with black hair.....*Centris personata* Smith; male.— P.
Hind legs with pale hair.....*Centris personata* Smith; female.— P.
19. Integument with at least some bluish, purplish or greenish tints; abdomen not
banded; form very robust.....20.
Integument not at all metallic (very slightly in *Eulaema nigrita*, variety)....21.

¹ The female of *X. nitens* is black, with dark wings. It was not in the material sent. The female of *X. fimbriata* is also black.

20. Larger; anterior wing at least 17 mm. long; head and thorax with black hair; fourth and fifth abdominal segments purple. *Eulæma nigrita* Lepeletier.
Much smaller; cheeks densely covered with white hair; clypeus black in female, yellow in male. *Xylcopa barbata* (Fabricius).
21. Thorax and abdomen hairy; hair of thorax yellow, with a transverse black band, of abdomen black, with a transverse yellow band.
Bombus incarum Franklin.
Not thus colored. 22.
22. Clypeus with two longitudinal keels. 23.
Clypeus with a single, median longitudinal keel, sharp and extending its whole length; black bee, with black hair. *Eulæma nigrita* Lepeletier, variety; female.¹
Clypeus without any distinct keels. 25.
23. Scutellum with two large yellow marks.
Epicharis maculata barticana, new variety.— K.
Scutellum with the integument all dark. 24.
24. Second abdominal segment with a yellow mark on each side.
Epicharis affinis Smith.— P.
Abdomen with the integument all black. *Epicharis rustica* (Olivier).— P.
25. Less than 12 mm. long; wings not deep fuliginous. 26.
Over 18 mm. long; wings deep fuliginous. 27.
26. Hair bands of abdomen broad; male with long antennæ and yellow clypeus.
Florilegus barticanus, new species.
Hair bands of abdomen linear; integument of clypeus black.
Melitoma fulvifrons (Smith).
27. Hair of mesothorax and scutellum dark brown; apical part of abdomen with integument red. *Centris fusciventris* Mocsáry.— P.
Hair of mesothorax and scutellum red. 28.
28. Face with yellow markings; anterior wing about 14 mm. long.
Centris lineolata Lepeletier.
Face without yellow markings; anterior wing about 20 mm. long. .
Centris atriventris Mocsáry.— P.
29. Robust bees, not less than 9 mm. long. 30.
Small, fly-like bees, not nearly 9 mm. long. 32.
30. Thorax with ferruginous hair; integument of scutellum yellow.
Melipona fasciata barticensis Cockerell, ined.— P.
Thorax with dorsal hair not ferruginous. 31.
31. Abdomen more or less reddish, at least the first segment dorsally pale red.
Melipona intermixta Cockerell, ined.— P.
Abdomen black, with narrow yellowish-white tegumentary bands; a tuft of dark red hair before each tegula. *Melipona interrupta* (Latreille).— K.
32. Legs mainly red; clypeus yellow. *Trigona longipes* Smith.— K.
Legs and clypeus black. *Trigona* sp. (specimens imperfect).— P.

¹ A little purple can be seen at sides of abdomen, but it is easily overlooked.

NOTES AND DESCRIPTIONS

Melipona interrupta (Latreille).— In the specimen sent, the bands on second and following segments are notched above in middle, with only an obscure linear interruption.

Melipona fasciata barticensis Cockerell.— One specimen has five linear red bands on abdomen, but in another the bands are very indistinct, almost obsolete.

Melipona intermixta Cockerell.— The ground color of the first three abdominal tergites varies; in the lighter forms that of the first is pale fulvous with the shoulders blackish, of the second and third clear ferruginous.

Euglossa singularis Mocsáry.— Judging from the brief description, it appears that **E. meliponoides** Ducke is probably the same species.

Euglossa decorata Smith, var. **ruficauda**, new variety

Both sexes with abdomen ferruginous, apically more or less dusky, but the whole effect lighter and redder than typical; scutellum green with the hind margin red. Tuft on female scutellum light fulvous. The female, from Kalacoon, (Hym. 212) is the type of the variety.

Euglossa ignita Smith, var. **chlorosoma**, new variety

Green, without coppery tints, but variably suffused with purple. It is smaller than *E. piliventris*, with shorter mouth-parts, and the labrum pallid with a pair of dusky spots. A male in the U. S. Nat. Museum from Bartica, which I reported as *E. piliventris*, belongs here. Female *E. piliventris* has long yellow hairs on the anterior margin of hind basitarsus, but in *chlorosoma* the hair in this situation is black. The type of the variety is a female labelled Hym. 140. A female from Kalacoon has brassy and coppery tints on the apical part of abdomen, and must be referred to *E. ignita* proper. The type locality of *ignita* is Jamaica.

Ceratina læta Spinola. This was described from the female. The specimen sent is a male, and differs from the female in being smaller, and having a transverse band on anterior margin of clypeus, triangular marks on lower corners of face, and a large patch (emarginate above) on labrum all ivory-white. This is very like *C. viridula* Smith, which Ducke considers a synonym of *læta*, but the base of the metathorax seems to differ, and the nervures are piceous. For the present, therefore, I retain *C. viridula* as a distinct species. The female of *C. viridula*, collected by Busck in the Panama Canal Zone, is also distinguishable from that sex of *C. læta*.

Epicharis maculata var. **barticana**, new variety

♀.—Base of mandibles with a large cuneiform yellow mark; a broad black band down each side of labrum; yellow spots on prothorax large; scutellum with a pair of large transversely oval yellow areas, separated by a narrow black band; band on second abdominal segment with a posterior median projection. Kalacoon, 1916. (Hym. 217.)

Rhathymus beebei, new species

♀.—Length about 22 mm., anterior wing 18 mm.; head clear ferruginous, with red hair, lower part of face more pallid, with a creamy tint; apical half of mandibles black; clypeus prominent, minutely roughened, with a smooth median line; mesothorax black, with a median ridge, the surface on each side of this strongly punctured, but shining between the punctures; rest of thorax ferruginous, and all of thorax with ferruginous hair; scutellum not bigibbous, but with an elevated transverse ridge; pleura with a blackish area below the wings; lower part of mesopleura with a shining tubercle; tegulæ clear ferruginous, finely punctured; wings strongly reddened; legs clear ferruginous; abdomen fusiform, shining; first two segments dull reddish, pallid posterolaterally, the others reddish black, with the hind margins redder; apical plate very large, concave. Bartica District (Hym. 19). Very distinct by the transverse straight ridge on scutellum; nearest perhaps to the considerably smaller *R. unicolor* Smith, but that has dark fuscous wings. The antennæ are unfortunately missing.

Augochlora callichlorura, new species

♀.—Length a little over 7 mm.; first two abdominal segments rather weakly vibrissate on hind margin with orange hairs; hind spur of hind leg with long spines. Head and thorax very dark purplish, nearly black, but a blue-green spot at upper end of clypeus, supraclypeal area brilliant purple, and base of metathorax strongly tinged with purple; anterior and middle legs dark, with weak purple tints, but hind femora, tibiæ and basal half of basitarsi all brilliant green on outer side; abdomen short and broad, shining, very brilliant emerald green. Head broad, eyes strongly converging below; clypeus with extremely large punctures; front dull and granular; ocelli ordinary; cheeks with thin white hair; mesothorax and scutellum shining, but well punctured; base of metathorax with strong short plicæ; angles of prothorax not prominent; tegulæ rufotestaceous; wings grayish translucent, stigma and nervures dusky pale brown; first recurrent nervure meeting second transversocubital; abdomen with thin pale hair, hind margins of segments not darkened. Bartica District.

Unique by the combination of purplish head and thorax and green abdomen, the general effect recalling *A. atropos* Smith.

***Florilegus barticanus*, new species.**

♂.—Length about 11 mm.; black, except as follows: first abdominal segment strongly greenish; clypeus and labrum entirely yellow; mandibles fulvous apically (but base black); antennæ, except the first two joints, ferruginous beneath; hind tarsi, and apex of hind tibiæ, dusky red; hair of head and thorax ferruginous, paler below, no admixture of dark hairs; eyes reddish; mesothorax shining, but distinctly punctured; tegulæ clear ferruginous; wings dusky hyaline, nervures reddish fuscous; legs with pale hair, conspicuously plumose on hind tibiæ; abdomen with four broad dense ochraceous hair-bands, that on fourth segment broadly excavated in middle posteriorly, on fifth broadly interrupted; sixth segment with a small patch of fulvous hair on each side; apical part of abdomen dorsally, except for the bands and patches, with very dark fuscous hair. Bartica District (Hym. 11).

Related to *F. lanieri* Guér. from Cuba and *F. condigna* Cresson from the United States. In the coloration of the legs it is intermediate between these two.

***Tetrapedia lacteipennis* Vachal.**—It should be added to Vachal's description, that the dorsal abdominal segments 2 to 4 have yellow bands.

The Bartica collection contains a *Megalopta* from Hoorie, but it is unfortunately broken. I have *Megalopta panamensis* Cockerell from Maroni, French Guiana (Queensland Museum, 42).

I add the description of a new species from French Guiana, the type of which is in my collection.

***Augochlora maroniana*, new species**

♀.—Length slightly over 8 mm.; head, thorax and legs bright green; abdomen yellowish green strongly suffused with coppery, the first two segments with apical fringes of orange hair; face rather narrow; antennæ black; lower middle of clypeus black; mesothorax and scutellum rough with dense punctures, the scutellum with two copper-red spots; area of metathorax with very feeble plicæ; tegulæ black with pallid margin, the basal side broadly green; wings dusky; second s. m. square; first r. n. meeting second t. c.; stigma dusky reddish; legs with mainly pale hair, hind tibiæ with dark hair on outer side basally; hind spur with about six long spines; basal half of basitarsi green on outer side; abdomen shining, with pale ochreous hair.

Maroni, French Guiana (Queensland Mus., 43). Related to *A. cupreola* (Ckll.), but with the vibrissate fringes on abdomen nearly twice as long, and deep orange-fulvous, and the mesothorax much more densely punctured. Also related to *A. diversipennis* (Lep.), but with the face much narrower, and the area of metathorax much less distinctly plicate. From *A. calypso* Sm. it is known by the wings not being yellowish, the inner orbits not edged with blue, and the tarsi not ferruginous.

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